**Model Development Phase Template**

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| Date | 15 March 2024 |
| Team ID | xxxxxx |
| Project Title | Forecasting Economic Prosperity: Leveraging Machine Learning For GDP Per Capita Prediction |
| Maximum Marks | 5 Marks |

**Feature Selection Report Template**

This feature selection report helps in streamlining the decision-making process and enhances transparency by providing clear reasoning for the inclusion or exclusion of each feature in the model.

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| **Feature** | **Description** | **Selected (Yes/No)** | **Reasoning** |
| Country | Name of the country | No | Not useful for predictive modeling as it is a categorical identifier. |
| Region | Geographic region of the country | Yes | Important for capturing regional economic differences and trends |
| Population | Total population of the country | Yes | Key demographic factor influencing GDP per capita. |
| Area (sq. mi.) | Total land area of the country | Yes | Relevant for understanding population density and resource allocation. |
| Pop. Density (per sq. mi.) | Population density per square mile | Yes | Provides insights into urbanization and potential economic activity. |
| Coastline (coast/area ratio) | Ratio of coastline to land area | No | Not directly relevant to GDP per capita prediction. |
| Net migration | Net migration rate | Yes | Indicates economic attractiveness and workforce changes. |
| Infant mortality (per 1000 births) | Infant mortality rate | Yes | Reflects healthcare quality and economic development level. |
| GDP ($ per capita) | GDP per capita in USD | Yes | Target variable for prediction. |
| Literacy (%) | Literacy rate percentage | Yes | Indicator of education level, which affects economic productivity. |
| Phones (per 1000) | Number of phones per 1000 people | Yes | Proxy for technological adoption and infrastructure. |
| Arable (%) | Percentage of arable land | Yes | Relevant for agricultural productivity and economic factors. |
| Crops (%) | Percentage of land used for crops | No | Less relevant compared to arable land percentage. |
| Other (%) | Percentage of land used for other purposes | No | Not directly impactful for GDP per capita. |
| Climate | Climate category (numeric/text) | No | Inconsistent data type and less direct impact on GDP per capita. |
| Birthrate | Birth rate per 1000 people | Yes | Demographic factor influencing workforce and economic activity. |
| Deathrate | Death rate per 1000 people | Yes | Indicator of overall health conditions affecting productivity. |
| Agriculture | Contribution of agriculture to GDP | Yes | Directly relevant to economic composition and productivity. |
| Industry | Contribution of industry to GDP | Yes | Directly relevant to economic composition and productivity. |
| Service | Contribution of service sector to GDP | Yes | Directly relevant to economic composition and productivity. |